

REMARKS

Entry of this amendment and reconsideration of the present application, as amended, are respectfully requested.

Claims 1, 2, 4-36 and new claims 48-66 are pending in this application. Claim 3 has been cancelled. Claims 37-47 are withdrawn from consideration and cancelled without prejudice to filing a divisional application directed to the subject matter of these claims.

Claims 1, 2, 4-6, 8-11, 15-22, 24-31 and 33-36 are amended herein. Unless an argument is made below in support of the patentability of any of these claims over a cited prior art reference in view of an amendment to the claim, the changes to the claims do not relate to patentability.

Restriction Requirement

Applicants hereby confirm the election of claims 1-36 drawn to an initial seat occupancy classification system which relies on new evidence to change the classification. Claims 37-47 have therefore been withdrawn from consideration. New claims 48-66 read on the elected invention and should be considered in this application together with currently pending claims 1, 2 and 4-36

Claim Rejections-35 U.S.C. §103(a)

Claims 1-4, 15, 16, 19, 20 and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al. (U.S. Pat. No. 6,636,792).

The Examiner's rejection is respectfully traversed in view of amendments to independent claims 1 and 19.

With respect to claim 1, claim 1 is directed to a method for controlling output of a classification algorithm which classifies an occupant of a seat in a vehicle in which the occupant is initially classified and a current classification is output. An initial threshold period of time relative to which changes in the current classification are made is set and multiple re-classifications of the occupant are conducted. A substantially consecutive period of time that the occupant has been classified or re-classified as the current classification is determined (see the loop in which a counter n is increased in Fig. 1) and also, a determination is made whether this period of time or the initial threshold is less and whichever is less is set as a comparison threshold (see the specification at page 12, line 20 to page 13, line 11). A substantially consecutive period of time that the occupant has been classified differently than the current classification is determined (see the loop in which a counter m is increased in Fig. 1) and the current classification is changed to this different classification only when the consecutive period of time that the

occupant has been classified differently than the current classification is greater than the comparison threshold.

Thus, the current classification is changed only when certain time-dependent conditions are met. Specifically, these conditions are when the consecutive period of time that the classification of the occupant is different is greater than the consecutive period of time that the classification of the occupant was the same (the first time period which is operative in the condition $m > n$ in Fig. 1) or greater than the pre-determined threshold (the second time period which, as described in the specification at page 12, lines 26-27, is a maximum value placed on n).

As shown in Fig. 1, a change can be made when the number of times the occupant is classified differently than the previous classification is greater than the number of times the occupant was classified with the previous classification (the condition $m > n$). However, to avoid a situation where a change in occupancy would never be made because the number of times the occupant was classified with the previous classification is large, the parameter n (the number of times the occupant was classified with the previous classification) may be limited to a maximum value (see the specification at page 12, lines 26-27). An example is provided at page 12, lines 31-32 wherein the maximum value is 3 minutes. Thus, if an occupant is classified as an adult for 20 minutes, a change in classification can be made as soon as the occupant is classified as something else for only 3 minutes (and not 20 minutes).

The invention also allows for a change in classification when the number of times the occupant was classified with the previous classification is less than the maximum value, i.e., if an occupant is classified as an adult for 2 minutes (less than the 3 minute threshold), and then something else for 2.5 minutes, a change in classification will be effected. The formula for enabling changes in a classification of the occupant of a vehicle depends on analysis of the consecutive number of times the occupant is classified as something other than the current classification relative to the lesser of the threshold or the consecutive number of times the occupant is classified as the current classification, whichever is less being set as the comparison threshold as set forth in claim 1.

Thus, if the consecutive period of time that the classification of the occupant was the same as the current classification is less than the pre-determined threshold, the comparison threshold will be the consecutive period of time that the classification of the occupant was the same as the current classification. If the consecutive period of time that the classification of the occupant was the same as the current classification is greater than the pre-determined threshold, the comparison threshold will be the pre-determined threshold.

Lichtinger et al. does not disclose, teach or suggest changing the current or output classification based on two different time periods, and specifically, only when the consecutive period of time that the

occupant has been classified as something else is greater than a comparison threshold which is the lesser of the consecutive period of time that the occupant has been classified as the current classification or a pre-determined threshold.

Lichtinger et al. describes a method for controlling output of a classification algorithm having two stages, a track stage and a lock stage. In the track stage, the occupant is repeatedly classified and whatever classification is obtained is output (col. 10, lines 59-60). The track stage continues until a predetermined number of consistent and consecutive classifications are observed, at which time, that classification is locked and considered the current classification, i.e., the algorithm reaches the lock stage (col. 10, lines 50-52). During the track stage however, whenever a classification is obtained which is different from the immediately preceding classification, the count of the number of consistent and consecutive classifications also begins anew (col. 10, lines 55-57). Thus, if the number of classifications needed to lock is 20 and the same classification of an adult is returned for 15 consecutive times, and then a single different classification is obtained, the process would remain in the track stage and the process of counting consistent and consecutive classifications begun anew. The output classification during the track stage would thus be whatever the immediately obtained classification is without regard to any previous classification. This continues as long as the classification has not been returned the predetermined number of times to reach the lock stage.

Lichtinger et al. does not analyze whether a consecutive period of time that the occupant has been classified or re-classified as the current re-classification or an initial threshold is less and set whichever is less as a comparison threshold to which a consecutive period of time that the occupant has been classified differently than the current classification is compared for the purpose of enabling a change in classification. Rather, the decision to change the classification is either made based on a change between consecutive classifications (in the track stage) or relative to a pre-determined threshold (in the lock stage).

With respect to claim 19, claim 19 is directed to a method for controlling output of a classification algorithm which classifies an occupant of a seat in a vehicle in which the occupant is initially classified and a current classification is output. Multiple re-classifications of the occupant are conducted and a substantially consecutive period of time that the occupant has been classified or re-classified as the current classification is determined. A threshold relative to which changes in the current classification can be made is set equal to the consecutive period of time that the occupant has been classified or re-classified as the current classification. A substantially consecutive period of time that the occupant has been classified differently than the current classification is determined and the current classification is changed depending on analysis of the consecutive period of time that the occupant has

been classified differently than the current classification relative to the threshold. This threshold is adjusted as a function of the consecutive period of time that the occupant has been classified differently than the current classification.

Thus, in this embodiment, a threshold relative to which changes in the current classification are made is adjusted as a function of the consecutive period of time that the occupant has been classified differently than the current classification. This embodiment is described in the specification at page 12, lines 34-35.

Lichtinger et al. does not disclose, teach or suggest providing an adjustable threshold relative to which changes in classification are made. Rather, the threshold relative to which changes are made when the method is operating in the lock stage is constant.

In view of the changes to claims 1 and 19 and the arguments presented above, it is respectfully submitted that the Examiner's rejection of claims 1-4, 15, 16, 19, 20 and 24 under 35 U.S.C. §102(b) as being anticipated by Lichtinger has been overcome and should be removed.

Claim Rejections-35 U.S.C. §103

Claims 5-7 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al. in view of Gillis et al. Claims 10, 11 and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al. in view of Kamei et al. Claims 12-14 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al. in view of Owechko et al. Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al. in view of Baloch et al. Claims 8, 9, 18, 21, 25-30, 33 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al. in view of Wallace. Claims 35 and 36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al., Wallace and Gillis et al. Claim 31 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al., Wallace and Kamei et al. Claim 32 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lichtinger et al., Wallace and Owechko et al.

With respect to claims 5-14, 17, 18 and 21-23 and 25, the secondary references do not disclose, teach or suggest providing two different time periods relative to which changes in classification are made (as set forth in claim 1) or providing an adjustable threshold relative to which changes in classification are made (as set forth in claim 19). Therefore, one could not combine the secondary references with Lichtinger et al. and arrive at the embodiments of the invention set forth in these claims.

With respect to claims 26-36, independent claim 26 is amended to recite that the classification is reset by classifying the occupant and outputting the classification upon detection of motion of the vehicle and absence of motion of the vehicle.

Lichtinger et al., Wallace, Gillis et al., Kamei et al, and Owechko et al. do not disclose, teach or suggest resetting the classification of an occupant based on motion of the vehicle or the absence thereof. Wallace describes resetting the classification based on vacating the seat. Gillis et al. describes resetting the classification based on a door switch or weight change detection. Kamei et al. describes resetting the classification based on ignition of the vehicle.

Since the cited prior art does not mention resetting a classification algorithm based on vehicle motion or the absence thereof, the prior art cannot be combined to render the embodiments of the invention set forth in claims 26-36 unpatentable.

In view of the foregoing, it is respectfully submitted that the Examiner's rejection of claims 5-14, 17, 18, 21-23 and 25-36 under 35 U.S.C. § 103(a) have been overcome and should be removed.

New claims

Claims 48-66 are added. In view of the cancellation of claims 3 and 37-47, seven additional claims in excess of twenty are presented resulting in an extra claims fee of \$175.00 and two additional independent claims in excess of three are presented resulting in an extra claims fee of \$200.00, both fees based on applicants' entitlement to small entity status. The fees totaling \$375.00 should be charged to Deposit Account No. 50-0266.

Claims 48 and 49 depend from claims 1 and 19, respectively.

Claim 50 is a new independent claim including the feature of changing the current classification to a tentative, different re-classification of the occupant only when the substantially consecutive period of time that the occupant has been classified as the tentative re-classification is greater than the lesser of the substantially consecutive period of time that the occupant has been classified as the current classification or the threshold. By substantially consecutive period of time, it is meant that clearly erroneously classifications resulting from, e.g., bad data, noise or a flash of sunlight, do not interrupt the "consecutiveness" of the periods of time in which appropriate initial classification or re-classifications and appropriate tentative re-classifications are being made.

Claims 51-57 depend directly or indirectly from claim 50.

Claim 58 is a new independent claim including the feature of adjusting a threshold relative to which changes in classification are made as a function of the consecutive period of time that the occupant has been classified as a tentative re-classification which is different than the current classification.

Claim 59 depends from claim 58.

Claim 60 is directed to a method for controlling output of a classification algorithm which classifies an occupant of a seat in a vehicle in which a bladder weight sensor is arranged in a bottom

cushion of the seat. Lichtinger et al. does not disclose this particular type of weight sensor nor would it be obvious to use this particular type of sensor in the Lichtinger et al. system in view of differences in its mounting and use relative to the weight sensors disclosed in Lichtinger et al.

Claims 61 and 62 depend from claim 60.

Claim 63 is directed to a method for controlling output of a classification algorithm which classifies an occupant of a seat in a vehicle in which a spatial sensor is arranged to generate a field over a bottom cushion of the seat and in which the occupant is expected to be situated and data about the occupant is obtained from the spatial sensor for classifying the occupant. Lichtinger et al. describes using weight sensors and does not disclose, teach or suggest spatial sensors which determine information about an occupant based on the presence and position of the occupant in a field above the seat.

Claims 64-66 depend from claim 63.

Interview Request

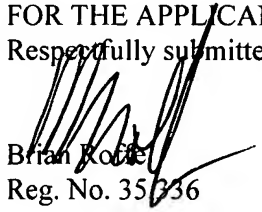
If the Examiner should determine that the application can be placed into condition for allowance, for example, by making minor changes to the claims, the Examiner is respectfully requested to contact the undersigned to discuss the same.

Petition for Extension

Applicants hereby petition for a one-month extension to extend the time for response to the outstanding Office Action for one month from June 10, 2005 to July 10, 2005. The petition fee of \$60, applicants qualifying for small entity status, should be charged to Deposit Account No. 50-0266.

An early and favorable action on the merits is earnestly solicited.

FOR THE APPLICANTS
Respectfully submitted,


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